

Quality	35NiCrMoV12-5	Supply conditions:
According to standards	Werkstoff	Quenched and Tempered
Number	1.6959	

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	Ni%	V%
0,30-0,40	0,15-0,35	0,40-0,70	0,015	0,015	1,00-1,40	0,35-0,60	2,50-3,50	0,08-0,20

Temperature °C

Hot-forming	Quenching	Tempering	Stress-relieving	Stress-relieving must be done after machining and before quenching			
1100-900	heating up to 650, pause, then 850 oil, polymer, forced air	see table immediately after quenching minimum 2 cycles	680 furnace cooling to 300, then air				
Soft annealing	Stress-relieving		Pre-heating welding	Stress-relieving after welding			
750 furnace cooling max 20°/h to 600, pause, then air (HB max 240)	50° under the temperature of tempering, furnace cooling max 20°/h to 300, then air		300	550 furnace cooling			
			Ac1	Ac3	Ms	Mf	
			710	800	320	100	
Flame and induction hardening	Nitriding						
850-870 water, oil	500-530						

Mechanical properties

Tempering table values at room temperature after quenching at 850 °C in oil

HB	468	435	420	381	375
HRC	49	46.5	44.5	41	38.5
N/mm ²	1700	1550	1400	1300	1200
Tempering at °C	450	500	550	600	650

Thermal expansion	10 ⁻⁶ • K ⁻¹		11.1	12.1	13.4	14.8
Modulus of elasticity	long.	GPa	210		196	177
Modulus of elasticity	tang.	GPa	81		75	68
R after tempering at 550 °C	N/mm ²		1460	1280		
Rp 0.2 after tempering at 550 °C	N/mm ²		1320	1120		
Testing at °C			20	100	200	250
					500	

Specific heat capacity J/(Kg•K)	Density Kg/dm ³	Thermal conductivity W/(m•K)			Specific electric resist. Ohm•mm ² /m	Electrical conductivity Siemens•m/mm ²
		20°	250°	500°		
460	7.85	24.7	24.3	23.9	0.19	5.26

Alloyed steel for plastic moulds

- high resistance to mechanical stress, excellent toughness
- good machinability, excellent suitability for photo-engraving and polishing
- good suitability to nitriding, excellent wear resistance
- good weldability
- applications: *medium and large-sized moulds for the automotive industry, moulds for pressing, pressure moulds, bolsters for plastic pressure pouring*
- extrusion: *mechanical parts for extrusion presses, dies and gauges for PVC*